EUROSKILLS TECHNICAL DESCRIPTION

WEB DEVELOPMENT (17)

WorldSkills Europe, by a resolution of the Competition Development Committee (CDC) and in accordance with the Constitution, the Standing Orders and the Competition Rules, has adopted the following minimum requirements for this skill for the EuroSkills Competition.

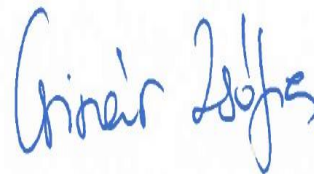## THE TECHNICAL DESCRIPTION CONSISTS OF THE FOLLOWING:

INDEX:

Effective 16.11.15

Mr Guillaume Suteau
Chair - CDC

Ms Szofia Csiszar
Vice Chair - CDC

1. INTRODUCTION

1.1 NAME AND DESCRIPTION OF THE SKILL COMPETITION

1.1.1 THE NAME OF THE SKILLS COMPETITION IS

Web Development

1.1.2 DESCRIPTION OF THE ASSOCIATED WORK ROLE(S) OR OCCUPATION(S)

Web Development encompasses many different skills and disciplines in the production and maintenance of websites. The skills required of a web developer are diverse, often to the point it is difficult for a developer to excel in all aspects. As a result, a team may cover the Web Design and Development process, with each member of the team having their own strengths, specialties and role in the development process.

Web Development involves implementing specific solutions that follow the business rules and objectives outlined by the client. Web Developers develop a professional relationship with their clients, interacting with them in order to develop a deep understanding of the requirements and convert these into a website specification.

Based on the website planning and design, the Web Developer integrates the website with third party tools and platforms. During the development process the Web Developer implements the design, use their programming skills in order to create dynamic functionalities, test and debug the website using a variety of devices. The current trend is to also integrate the website with social media to take advantage of the online marketing platforms available.

A Web Developer has many employment opportunities. This can range from being a self-employed freelancer or an entrepreneur to being employed by advertising agencies and web development companies as well as many different other types of organizations. Web Developer positions may be broad in scope or specialize in an area such as Digital User Experience Implementation, Front End Development, Back End Development, Content Management Systems Developer as well as Client and Project Management. Whichever role a Web Developer chooses to specialize in they will need to have access to ICT facilities, open source libraries and frameworks.

High performing Web Developers may have broad or specialist web-related skills. They must understand artistic values; have solid programming skills complemented with some user interface design skills, and take personal responsibility for being constantly at the forefront of trends and web technology. They must also be responsive to clients and have the ability to work in structured and unstructured teams and groups. These qualities enable the Web Developer to contribute and take advantage of this rapidly developing aspect of modern communications technology.

1.2 THE CONTENT, RELEVANCE AND SIGNIFICANCE OF THIS DOCUMENT

This document incorporates a Role Description and Standards Specification which follow the principles and some or all of the content of the WorldSkills Standards Specifications. In doing so WSE acknowledges WorldSkills International's (WSI's) copyright. WSE also acknowledges WSI's intellectual property rights regarding the assessment principles, methods and procedures that govern the competition.

Every Expert and Competitor must know and understand this Technical Description.

In the event of any conflict within the different languages of the Technical Descriptions, the English version takes precedence.

1.3 ASSOCIATED DOCUMENTS

Since this Technical Description contains only skill-specific information it must be used in association with the following:

- o   WSE –Competition Rules
- o   WSI – WorldSkills Standard Specification framework
- o   WSE – WorldSkills Europe Assessment Strategy
- o   WSE – Online resources as referenced in this document
- o   Host Country – Health and Safety regulations

2. THE STANDARDS SPECIFICATION

2.1 GENERAL NOTES REGARDING WSSS / WSESS

Where appropriate WSE has utilised some or all of the WorldSkills International Standards Specifications (WSSS) for those skills competitions that naturally align between the two international Competitions. Where the skill is exclusive to the EuroSkills Competition, WorldSkills Europe has developed its own Standards Specification (WSESS) using the same principles and framework to that used for the development of the WSSS. For the purposes of this document the use of the words "Standards Specification" will refer to both WSSS and WSESS.

The Standards Specification specifies the knowledge, understanding and specific skills that underpin international best practice in technical and vocational performance. It should reflect a shared global understanding of what the associated work role(s) or occupation(s) represent for industry and business. (www.worldskills.org/WSSS) *(TBA for WorldSkills Europe)* Helpfully, for the global consultation on the WSSS in 2014, around 50 per cent of responses came from European industry and business.

Each skill competition is intended to reflect international best practice as described by the Standards Specification, and to the extent that it is able to. The Standards Specification is therefore a guide to the required training and preparation for the skill competition.

In the skill competition the assessment of knowledge and understanding will take place through the assessment of performance. There will not be separate tests of knowledge and understanding.

The Standards Specification is divided into distinct sections with headings and reference numbers added.

Each section is assigned a percentage of the total marks to indicate its relative importance within the Standards Specification. The sum of all the percentage marks is 100.

The Marking Scheme and Test Project will assess only those skills that are set out in the Standards Specification. They will reflect the Standards Specification as comprehensively as possible within the constraints of the skill competition.

The Marking Scheme and Test Project will follow the allocation of marks within the Standards Specification to the extent practically possible. A variation of five percent is allowed, provided that this does not distort the weightings assigned by the Standards Specification.

2.2 STANDARDS SPECIFICATION

	SECTION	RELATIVE IMPORTANCE %
1	Work organization and self-management	6
	The individual needs to know and understand: o Principles and practices that enable productive team work o The principles and behaviour of systems o The aspects of systems that contribute to sustainable products, strategies and practices o How to take initiatives and be enterprising in order to identify, analyse and evaluate information from a variety of sources	

		The individual shall be able to:	
		- Troubleshoot common web design and development problems - Take into account time limitations and deadlines - Debug and handle errors - Use a computer or device and a range of software packages - Apply research techniques and skills to keep up-to-date with the latest industry guidelines - Plan each day's production schedule according to available time - Include linked images, fonts, native files and production file format when archiving - Use version control systems	
2	Communication and interpersonal skills		7
		The individual needs to know and understand:	
		- How to solve communication problems including identifying the problem, research, analysis, solution generating, prototyping, user testing and outcome evaluation - Design concepts and techniques including wire framing, storyboarding, and creating flowcharts - Software design concepts and techniques including flowchart and ER diagrams	
		The individual shall be able to:	
		- Read and understand specifications documents - Deliver a product that responds to client requirements and specification - Gather, analyse and evaluate information - Interpret standards and requirements - Match client requirements - Present a concept to meet business requirements	
3	Website design		12
		The individual needs to know and understand:	
		- How to follow design principles and patterns in order to produce aesthetically pleasing and creative design - Issues related to the cognitive, social, cultural, technological and economic contexts for design - How to create and adapt graphics for the web - How to create a design using a provided brief and specification - Different target markets and the elements of design which satisfy each market - Protocols for maintaining a corporate identity, brand and style guide - The limitations of Internet enabled devices and screen resolutions	
		The individual shall be able to:	

		o Create, analyse develop visual response to communication problems, including understanding hierarchy, typography, aesthetics and composition o Create, manipulate and optimize images for the internet o Identify the target market and create a concept for the design o Create responsive designs that function correctly on multiple screen resolutions and/or devices o Transform an idea into an aesthetically pleasing and creative design o Critique draft concepts, colour and typography choices	
4	Website layout		20
		The individual needs to know and understand: o World Wide Web Consortium (W3C) standards for HTML and CSS o Positioning and layout methods o Usability and interaction design o Accessibility and communication for users with special needs o Cross browser compatibility o Search Engine Optimization (SEO) o How to embed and integrate animations, audio and video where needed	
		The individual shall be able to: o Create code that conforms and validates to the W3C standards o Create accessible and usable websites for variety of devices and screen resolutions o Use CSS or other external files to modify the appearance of the website o Use CSS pre/post-processors o Create and update websites to assist with search engine performance	
5	Client side functionality		20
		The individual needs to know and understand: o JavaScript o How to integrate libraries, frameworks and other systems or features with JavaScript	
		The individual shall be able to: o Create website animations and functionalities to assist in context explanations and adding visual appeal o Create and update JavaScript code to enhance a websites functionality, usability and aesthetics o Manipulate data and custom media with Javascript o Create modular and reusable JavaScript code	
6	Server side functionality		20

	The individual needs to know and understand:	
	o Object-oriented PHP o Open Source server side Libraries and Frameworks o How to design and implement databases with MySQL o FTP (File Transfer Protocol) server and client relationships and software packages. o How to manage data exchange between server and client systems o Software design patterns (E.g. MVC (Model View Controller)) o Web application security	
	The individual shall be able to: o Manipulate data making use of programming skills o Protect against security exploits o Integrate with existing code with API (Application Programming Interfaces), libraries and frameworks	
7	Content management systems	15
	The individual needs to know and understand: o Benefits and limitations of open source Content Management Systems o How to find, choose and implement suitable plugins / modules o How to implement client side functionalities to CMS web sites	
	The individual shall be able to: o Install, configure and update Content Management Systems o Install, configure and update CMS plugins / modules o Create custom themes / templates for Content Management o Create custom plugins / modules	
	Total	**100%**

3. THE ASSESSMENT APPROACH & PRINCIPLES

3.1 GENERAL GUIDANCE

Note: this Section and Section 4 summarize a great deal of new information and guidance regarding assessment. Please refer to the Competition Rules for greater detail.

The Competition Development Committee (CDC) establishes the principles and techniques to which assessment at the EuroSkills Competition must conform.

Expert assessment practice lies at the heart of the EuroSkills Competition. For this reason it is the subject of continuing professional development and scrutiny. The growth of expertise in assessment will inform the future use and direction of the main assessment instruments used by the EuroSkills Competition: the Marking Scheme, Test Project, and Competition Information System (CIS).

Assessment at the EuroSkills Competition falls into two broad types: measurement and judgement. Where the earlier terms "objective" and "subjective" still occur, these must be understood to mean measurement and judgement for all procedural and practical purposes. All assessment will be governed by explicit benchmarks, referenced to best practice in industry and business.

The Marking Scheme must include these benchmarks and follow the weightings within the Standards Specification. The Test Project is the assessment vehicle for the skill competition, and also follows the Standards Specification. The CIS enables the timely and accurate recording of marks, and has expanding supportive capacity.

The Marking Scheme, in outline, will lead the process of Test Project design. After this, the Marking Scheme and Test Project will be designed and developed through an iterative process, to ensure that both together optimize their relationship with the Technical Description and the principles for assessment as set out in the WSE Assessment Strategy. They will be agreed by the Experts and submitted to WSE for approval together, in order to demonstrate their quality and conformity with the Standard Specification.

Prior to submission for approval to WSE, the Marking Scheme and Test Project will be reviewed by the WSE Skill Advisors in order to benefit from the capabilities of the CIS.

4. THE MARKING SCHEME

4.1 GENERAL GUIDANCE

This Section describes the role and place of the Marking Scheme, how the Experts will assess Competitors' work as demonstrated through the Test Project, and the procedures and requirements for marking.

The Marking Scheme is the pivotal instrument of the EuroSkills Competition, in that it ties assessment to the standards that represent the skills to be tested. It is designed to allocate marks for each assessed aspect of performance in accordance with the weightings in the Standards Specification.

By reflecting the weightings in the Standards Specification, the Marking Scheme establishes the parameters for the design of the Test Project. Depending on the nature of the skill and its assessment needs, it may initially be appropriate to develop the Marking Scheme in more detail as a guide for Test Project design. Alternatively, initial Test Project design can be based on the outline Marking Scheme. From this point onwards the Marking Scheme and Test Project should be developed together.

Section 2.1 above indicates the extent to which the Marking Scheme and Test Project may diverge from the weightings given in the Standards Specification, if there is no practicable alternative.

The Marking Scheme and Test Project may be developed by one person, or several, or by all Experts. The detailed and final Marking Scheme and Test Project must be approved by the whole Expert Jury prior to submission for independent quality assurance. The exception to this process is for those skill competitions which use an external designer for the development of the Marking Scheme and Test Project.

In addition, Experts are encouraged to submit their Marking Schemes and Test Projects for comment and provisional approval well in advance of completion, in order to avoid disappointment or setbacks at a late stage. They are also advised to work with the CIS Team at this intermediate stage, in order to take full advantage of the possibilities of the CIS.

In all cases the complete and approved Marking Scheme must be entered into the CIS at least eight weeks prior to the Competition using the CIS standard spreadsheet or other agreed methods.

4.2 ASSESSMENT CRITERIA

The main headings of the Marking Scheme are the Assessment Criteria. These headings are derived in conjunction with the Test Project. In some skill competitions the Assessment Criteria may be similar to the section headings in the Standards Specification; in others they may be totally different. There will normally be between five and nine Assessment Criteria. Whether or not the headings match, the Marking Scheme must reflect the weightings in the Standard Specification.

Assessment Criteria are created by the person(s) developing the Marking Scheme, who are free to define criteria that they consider most suited to the assessment and marking of the Test Project. Each Assessment Criterion is defined by a letter (A-I).

The Mark Summary Form generated by the CIS will comprise a list of the Assessment Criteria.

The marks allocated to each criterion will be calculated by the CIS. These will be the cumulative sum of marks given to each aspect of assessment within that Assessment Criterion.

4.3 SUB CRITERIA

Each Assessment Criterion is divided into one or more Sub Criteria. Each Sub Criterion becomes the heading for a EuroSkills marking form.

Each marking form (Sub Criterion) has a specified day on which it will be marked.

Each marking form (Sub Criterion) contains Aspects to be assessed and marked by measurement or judgement. Some Sub Criteria have assessment by both measurement and judgement, in which case there is a separate marking form for each method

4.4 ASPECTS

Each Aspect defines, in detail, a single item to be assessed and marked together with the marks, or instructions for how the marks are to be awarded. Aspects are assessed either by measurement or judgement and appear on the appropriate marking form.

The marking form lists, in detail, every Aspect to be marked together with the mark allocated to it, the benchmarks, and a reference to the section of the Standards Specification.

The sum of the marks allocated to each Aspect must fall within the range of marks specified for that section of the Standards Specification. This will be displayed in the Mark Allocation Table of the CIS, in the following format, when the Marking Scheme is reviewed from C-8 weeks. (Section 2.1).

	CRITERIA									TOTAL MARKS PER SECTION
		A	B	C	D	E	F	G	H	I	
STANDARD SPECIFICATION SECTIONS	1										
	2										
	3										
	4										
	5										
	6										
	7										
	8										
	9										
TOTAL MARKS PER CRITERION											100

4.5 ASSESSMENT AND MARKING BY JUDGEMENT

In addition to measurement, Experts are expected to make professional judgements. These are normally judgements about quality. Benchmarks will be designed, agreed and recorded during the design and finalization of the Marking Scheme and Test Project in order to steer and support these judgements.

Marking through judgement uses the following scale:

o   0: performance below industry standard to any extent, including a non-attempt
o   1: performance that meets industry standard
o   2: performance that both meets industry standard and surpasses that standard to some extent
o   3: excellent or outstanding performance relative to industry standards and expectations.

4.6 ASSESSMENT AND MARKING BY MEASUREMENT

Unless otherwise stated, only the maximum mark or zero will be awarded. Where they are used, partial marks will be clearly defined within the Aspect.

4.7 ASSESSMENT OVERVIEW

For both measurement and judgement there will be three Experts in the assessment team.

Good practice in assessment comprises measurement and judgement applied both specifically and broadly. The final proportions of measurement and judgment, whether specific or broad, will be determined by the standards, their weightings and the nature of the Test Project.

4.8 COMPLETION OF SKILL ASSESSMENT SPECIFICATION

This section defines the assessment criteria and the number of marks (judgement and measurement) awarded. The total number of marks for all assessment criteria must be 100. If completed, the content of this Table is advisory only, and may change when the details of assessment are developed.

See Section 4.9 below.

Section	Criterion	Marks		
		Judgement (if applicable)	Measurement	Total

4.9 SKILL ASSESSMENT PROCEDURES

Competitors will be given all the necessary materials prior to the commencement of each module.

Criteria for objective marking

There can be four different types of objective criteria in the Test Project. In the table below is the explanation of the types.

TYPE	EXAMPLE	MAXIMUM MARKS	CORRECT	NOT CORRECT
Full or zero marks	Site Map dynamically linked to menu	0.50	0.50	0
Deduct from full marks	Code validate to HTML 1.0 Strict [deduct 0.5 mark for each type of error]	2.00	2.00	0 – 1.5
Add to zero marks	CSS documentation (0.5) HTML documentation (0.5)	1.0	1.0 .	0 – 0.5
Speed marks	Calculated based on what time Competitors complete a set task.			

Each Expert will perform as a member of a marking team of the final project.

Experts will be divided into marking teams allocating equal objective and judgement marking where possible. The composition of the marking teams will be decided by the CE and DCE with the aim of having a balance of new and experienced Experts in each. Experts will be divided into different cultural groups for subjective marking where possible.

Technologies such as frameworks and open source Content Management Systems (CMS) will be selected / finalised in the Discussion Forum at the CPW. All technologies must have a minimum of 3 Experts who have a high level understanding of the technology.

5. THE TEST PROJECT

5.1 GENERAL NOTES

Sections 3 and 4 govern the development of the Test Project. These notes are supplementary.

Whether it is a single entity, or a series of stand-alone or connected modules, the Test Project will enable the assessment of the skills in each section of the Standards Specification.

The purpose of the Test Project is to provide full and balanced opportunities for assessment and marking across the Standards Specification, in conjunction with the Marking Scheme. The relationship between the Test Project, Marking Scheme and Standards Specification will be a key indicator of quality.

The Test Project will not cover areas outside the Standards Specification, or affect the balance of marks within the Standards Specification other than in the circumstances indicated by Section 0.1.

The Test Project will enable knowledge and understanding to be assessed solely through their applications within practical work.

The Test Project will not assess knowledge of the EuroSkills Competition's rules and regulations.

This Technical Description will note any issues that affect the Test Project's capacity to support the full range of assessment relative to the Standard Specification. Section 2.1 refers.

5.2 FORMAT/ STRUCTURE OF THE TEST PROJECT

[ ] Test Project assessed at end of Competition

[X] Test Project with separately assessed modules

[ ] Test Project assessed in stages

[ ] Series of standalone modules

[ ] Other

If other, please specify here:

5.3 TEST PROJECT DESIGN REQUIREMENTS

Test Project modules are to be developed within the assessment criteria framework given in paragraph 4.7

The use of objective and judgement assessment.

Chief Expert and the Deputy Chief Expert will lead other Experts through the development of the Test Project modules, which are disclosed at the Competition. The CE and DCE can nominate additional Module Experts to create additional Module guidelines. The Chief Expert and the Deputy Chief Expert choose Module Experts as soon as they have the information of the participating Members.

All Experts will be divided in Module Groups for development and assessment.

5.4 TEST PROJECT DEVELOPMENT

The Test Project MUST be submitted using the templates provided by WSE. Use the Word template for text documents and DWG template for drawings. Please contact technical.coordinator@euroskills.org for guidance.

5.4.1 WHO DEVELOPS THE TEST PROJECTS OR MODULES

The Test Project / modules are developed under the supervision of the Jury President and responsibility of the Chief Expert by:

[X] All Experts

[ ] Some Experts, an expert can propose more than one project

[ ] Nominated Experts

[ ] Equipment supplier

The test project guidelines will be assembled by the CE, DCE and Module Experts and published on the forum. Every expert will have the possibility to make comments and changes will be made accordingly. Adjustments can be made to the Test Project during the competition preparation days.

5.4.2 HOW AND WHERE IS THE TEST PROJECTS OR MODULES DEVELOPED

The Test Project or modules are developed:

[X] Jointly on the Discussion Forum

[ ] By an external enterprise

[ ] Independently

[ ] The Test Project / modules are reviewed jointly by the experts before the competition.

[X] Other

If other, please specify here

Some modules can be developed by external experts from Worldskills

5.4.3 WHEN IS THE TEST PROJECT DEVELOPED

The Test Project is developed according to the following timeline:

TIME	ACTIVITY
At the previous Competition	not applicable
XX months prior to the Competition	Until 3 months before the current Competition
At the Competition	not applicable

5.5 TEST PROJECT VALIDATION

The final Test Project modules will be validated by the respective Module Group prior to the Competition. The Chief Expert and Deputy Chief Expert will provide assistance to Module Groups for the validation of projects. Module Groups will ensure that:

- o The project can be completed in the specified time;
- o The project can be completed with the provided material/media files;
- o The marking schemes are appropriately developed;
- o The Test Project meets the EuroSkills Standards Specification.

5.6 TEST PROJECT SELECTION

[ ] By vote of Experts at the previous Competition

[ ] By vote of Experts on the Discussion Forum

[ ] By vote of Experts at the current Competition

[ ] By random draw by Technical Director 3 months before the current Competition

[X] Other

If other, please specify here

> The Test Project will be created by all experts in the forum. The test project developed in the forum will be the one used during the competition.

5.7 TEST PROJECT CIRCULATION

The Test Project is circulated via the website as follows:

[X] Submitted to Secretariat for circulation 3 months before the current Competition

[ ] Not circulated

[ ] Other

If other, please specify here

5.8 TEST PROJECT COORDINATION (PREPARATION FOR COMPETITION)

Coordination of the Test Project will be undertaken by:

[ ] Skill Management Team

[ ] Chief Expert

[X] Chief Expert and Deputy Chief Expert

[ ] Chief Expert and Workshop Manager

[ ] Chief Expert with selected Experts

[ ] Chief Expert with Competition Organizer

[ ] Experts

[ ] Other

If other, please specify here:

5.9 TEST PROJECT CHANGE AT THE COMPETITION

Adjustments can be made to the Test Project during the competition preparation days. Where they have been circulated in advance, there will be 30% plus changes to their content, in keeping with the Competition Rules.

5.10 MATERIAL OR MANUFACTURER SPECIFICATIONS

Specific material and/or manufacturer specifications required to allow the Competitor to complete the Test Project will be supplied by the Competition Organizer and will be included in the infrastructure list created before the competition.

Each Module Group creates the media files where required for their module.

6. SKILL MANAGEMENT AND COMMUNICATION

6.1 DISCUSSION FORUM

Prior to the EuroSkills Competition, all discussion, communication, collaboration, and decision making regarding the skill competition must take place on the skill specific Discussion Forum, which can be reached via www.euroskills.org. Skill related decisions and communication are only valid if they take place on the forum. The Chief Expert (or an Expert nominated by the Chief Expert) will be the moderator for this Forum. Refer to Competition Rules for the timeline of communication and competition development requirements.

6.2 COMPETITOR INFORMATION

All information for registered Competitors is available from the WorldSkills Europe website www.euroskills.org. Please contact technical.coordinator@euroskills.org for guidance.

The information includes:

- o Competition Rules
- o Technical Outlines
- o Marking Schemes
- o Test Projects
- o Infrastructure List
- o Health and Safety documentation
- o Other Competition-related information

6.3 TEST PROJECTS AND MARKING SCHEMES

Circulated Test Projects will be available at the WorldSkills Europe website from www.euroskills.org. Please contact technical.coordinator@euroskills.org for guidance.

6.4 DAY-TO-DAY MANAGEMENT

The day-to-day management of the skill competition during the EuroSkills Competition is defined in the Skill Management Plan that is created by the Skill Management Team led by the Chief Expert. The Skill Management Team comprises the Jury President, Chief Expert and Deputy Chief Expert. The Skill Management Plan is progressively developed in the six months prior to the Competition and finalized at the Competition by agreement of the Experts. The Skill Management Plan can be viewed at www.euroskills.org. Please contact technical.coordinator@euroskills.org for guidance.

7. SKILL SPECIFIC SAFETY REQUIREMENTS

Refer to Host Country/Region Health and Safety documentation for Host Country/Region regulations.

8. MATERIALS AND EQUIPMENT

8.1 INFRASTRCUTURE LIST

The Infrastructure List details all equipment, materials and facilities provided by the Competition Organizer.

The Infrastructure Lists will be available at the WorldSkills Europe website from www.euroskills.org. Please contact technical.coordinator@euroskills.org for guidance.

The Infrastructure List specifies the items and quantities requested by the Experts for the next Competition. The Competition Organizer will progressively update the Infrastructure List specifying the actual quantity, type, brand, and model of the items. Items supplied by the Competition Organizer are shown in a separate column.

At each Competition, the Experts must review and update the Infrastructure List in preparation for the next Competition. Experts must advise the Technical Director of any increases in space and/or equipment.

At each Competition, the Technical Observer must audit the Infrastructure List that was used at that Competition.

The Infrastructure List does not include items that Competitors and/or Experts are required to bring and items that Competitors are not allowed to bring – they are specified below.

8.2 MATERIALS, EQUIPMENT AND TOOLS SUPPLIED BY COMPETITORS IN THEIR TOOLBOX

Competitors may bring the following items:
- o   A maximum of one mouse
- o   Mousepad
- o   A maximum of one USB keyboard in the Competitors desired language. Note: If the keyboard brought by the Competitor does not work then a standard keyboard will be provided by the Competition Organizer
- o   Language file for Microsoft OS to make the keyboard work correctly
- o   Headset and extension cable

All materials brought in by the Competitors must not have any internal memory storage devices. The Web Design Experts and Workshop Manager have the right to disallow certain equipment brought by Competitors.

Backup equipment is allowed in case of failure.

Music:
Competitors will be allowed to supply on Familiarization Day a memory stick containing a maximum of 30 songs. All music will be collated, verified and shared amongst all Competitors.

8.3 MATERIALS, EQUIPMENT AND TOOLS SUPPLIED BY EXPERTS

During the competition Competitors may have access to a limited number of Internet resources as required for each individual Module. Not all modules will make use of Internet resources. Except for these Internet resources, Competitors will not have access to the Internet from the Competitor workstations.

Common Internet workstations will be setup which Competitors can make use of twice a day. A maximum of ten minutes will be allocated to each session and any unused time cannot be re-allocated. Competitor Internet workstation sessions are not to be used consecutively; a minimum of one session must separate the use of the Internet workstation. During the time on the Internet workstation, Competitors are only allowed to surf the web. Competitors are not allowed to chat or communicate with others during the time on the Internet workstation. Experts will supervise the Internet workstation when it is in use by a Competitor. Notes may be taken between the Competitors workstation and the Internet workstation.

8.4 MATERIALS AND EQUIPMENT PROHIBITED IN THE SKILL AREA

- o Extra software
- o Mobile phones
- o Tablet devices
- o Photography/Video devices
- o Memory sticks
- o Equipment must not have any internal memory storage devices

Note: The Chief Expert, Deputy Chief Expert and Workshop Manager have the right to disallow equipment brought by Competitors.

8.5 PROPOSED WORKSHOP AND WORKSTATION

Workshop layouts from previous competitions are available by contacting the Technical Coordinator at: technical.coordinator@euroskills.org

9. VISITOR AND MEDIA ENGAGEMENT

Following is a list of possible ideas to maximize visitor and media engagement:

- o   If possible 2 mirrored monitors displayed for the public to view competitors' screens
- o   Display screens showing a presentation on what competitors are currently working on
- o   Enhanced understanding of Competitor activity
- o   Career opportunities
- o   People's Choice awards

10. SUSTAINABILITY

- o Recycling – No printing for Competitor workstations
- o Use of completed Test Projects after Competition
- o Limit the amount of software to be installed on Competitor workstations
- o Open source software